CLAIMS

What is claimed is:

1. A beneficial material for medical application in association with a substrate comprising:

- a support material; and

- a reactive material,

wherein the reactive material is ion exchanged into the support material and the support material is associatable with a substrate.

2. The beneficial material of claim 1 wherein the support material comprises one of the group consisting of: ionomers, anion exchange membranes, cation exchange membranes, Nasicon and Nafion.

3. The beneficial material of claim 1 wherein the reactive material comprises one of the group consisting of: noble metals and halogens.

4. The beneficial material of claim 1 wherein a substrate may comprise one of the group consisting of: formulations in a paste, putty, epoxy, adhesive, glue, spray or tar form for topical application, wound healing devices, prosthetic devices and other implantable devices.

5. A beneficial material for medical application in association with a substrate comprising:

- a reactive material associatable with a substrate, wherein the reactive material comprises a ionically conductive compound.

6. The beneficial material of claim 5 wherein the ionically conductive compound comprises an halide of a noble metal in selective combination with a metal oxide.

7. The beneficial material of claim 6 wherein a metal oxide has a surface area greater than 3 m^2/gm.

8. The beneficial material of claim 6 wherein the noble metal comprises one of the group consisting of: Ag, Au, Pt, Cu, Zn, Rb, Pd, Rh, Ir, Ru, Mg, Ca and Sn.

9. The beneficial material of claim 6 wherein the metal of the metal oxide comprises one of the group consisting of Ag, Au, Pt, Cu, Al, Si, Ti, Pd, Rh, Ir, Ru and Mg.

10. The beneficial material of claim 5 wherein a substrate may comprise one of the group consisting of: formulations in a paste, putty, adhesives, glue, epoxy spray or tar form for topical application, wound healing devices, prosthetic devices and other implantable devices.

11 The beneficial material of Claim 5 wherein the reactive material comprises one of Ag, Au, Pt, Cu, Zn, Rb, Pd, Rh, Ir, Ru, Mg, Ca, Sn, Si, Ti, Al in selective combination with an organic insecticide material.

12. The beneficial material of claim 11 wherein the organic insecticide material comprises Deet or Spinosad.

13. A beneficial material for medical application in association with a substrate comprising:

- a reactive material associatable with a substrate, wherein the reactive material comprises a photoactive compound.

14. The beneficial material of claim 14 wherein the photoactive compound comprises one of the group of consisting of: TiO_2 and Titanates, Fe_2O_3 and compounds of Fe_20_3 and other oxides, Silver and Copper Oxides, halides and chalcogenides, Vanadium pentoxide and vandates, Tin oxides and stannates, Silver Ion Conductors, NbO_2 and Niobates, TiO_2 and NbO2 solid solutions, Bi_2O_3 and bismuth chalcogenides, Silicon and Germanium doped with p-type and n-type impurities, P-N junctions of semiconductors, such as Si, ZnS, GaAs, etc., Photovoltaic materials, such as silicon, Ge, InP, ZnP, Zinc chalcogenides and Zn oxides and Zn phosphides..

15. A beneficial material for medical application in association with a substrate comprising:

- a reactive material associatable with a substrate, wherein the reactive material comprises one of water insoluble peroxides and water insoluble excess oxygen containing compounds.

16. The beneficial material of claim 15 wherein the water insoluble peroxides comprise one of the group consisting of: MgO_2, BaO_2, SnO_2, AgO, CaO_2 and ZnO_2.

17. The beneficial material of claim 15 wherein the water insoluble excess oxygen containing compounds comprise one of the group consisting of perovskites of $La_2NiO_4+\delta$, $La_2CuO_4+\delta$ $CeNiO_4+\delta$ and $Ce_2CuO_4+\delta$.

18. A wound healing device comprising:

- a substrate capable of association with a wound of a human or other animal; and

- a beneficial material associated with the substrate, wherein the beneficial material comprises one of an ionically conductive compound, a water insoluble peroxide, a water insoluble excess oxygen containing compound, a photoactive compound and a reactive material ion-exchanged with a support material.

19. The wound healing device of claim 18 wherein the substrate comprises one of a woven pad and a gauze pad.

20. The wound healing device of claim 18 wherein the substrate and beneficial material comprises a noble metal ion exchanged membrane.

21. The wound healing device of claim 18 wherein the reactive material comprises one of the group consisting of: ionomers, anion exchange membranes, cation exchange membranes, Nasicon and Nafion.

22. The wound healing device of claim 18 wherein the reactive material comprises one of the group consisting of: noble metals and halogens.

23. The wound healing device of claim 18 wherein the ionically conductive compound comprises a halide of a noble metal in selective combination with a metal oxide.

24. The wound healing device of claim 18 wherein the photoactive compound comprises one of the group of consisting of: TiO_2 and Titanates, Fe_2O_3 and compounds of Fe_20_3 and other oxides, Silver and Copper Oxides, halides and chalcogenides, Vanadium pentoxide and vandates, Tin oxides and stannates, Silver Ion Conductors, NbO_2 and Niobates, TiO_2 and NbO2 solid solutions, Bi_2O_3 and bismuth chalcogenides, Silicon and Germanium doped with p-type and n-type impurities, P-N junctions of semiconductors, such as Si, ZnS, GaAs, etc., Photovoltaic materials, such as silicon, Ge, InP, ZnP, Zinc chalcogenides and Zn oxides and Zn phosphides.

25. A method of incorporating a beneficial material to a substrate comprising the steps of:

- providing a substrate;
- coating the substrate with a support material; and
- ion exchanging a reactive material with the support material.

26. The method of claim 25 wherein the step of coating comprises one of the following steps:

- spraying the substrate with a support material;
- painting the substrate with a support material; and

- dipping the substrate into a support material.

27. A method of incorporating a beneficial material to a fluid or semi-solid substrate comprising the steps of:

- providing a fluid or semi solid substrate;

- providing the beneficial material; and

- mixing the beneficial material within the substrate, wherein the beneficial material comprises one of an ionically conductive compound, a water insoluble peroxide, a water insoluble excess oxygen containing compound, a photoactive compound, an organic insecticide material and a reactive material ion-exchanged with a support material.

28. The method of claim 27 further comprising the step of granulating the beneficial material.

29. The method of claim 27 wherein the substrate may comprise one of the group consisting of paint, epoxy, adhesive, glue and tar.

30. A method of associating a beneficial material with a substrate comprising the steps of:

- providing a substrate;

- providing beneficial material;

- mixing the beneficial material within the substrate;

- molding the mixed beneficial material and substrate into a desired configuration, wherein the beneficial material comprises one of an ionically conductive compound, a

photoactive compound and a reactive material ion-exchanged with a support material.

31. The method of claim 30 further comprising the step of granulating the beneficial material.

32. A method of applying a beneficial material to a human or other animal comprising the steps of:

- providing a beneficial material, wherein the beneficial material comprises one of an ionically conductive compound, a photoactive compound, an organic insecticide material and a reactive material ion-exchanged with a support material;

- associating the beneficial material with a substrate, wherein the substrate comprises a fluid or semi-solid material;

- applying the combined beneficial material and substrate upon the body of a human or animal.

33. The method of claim 32 wherein the step of applying comprises one of the steps of coating, painting, or pouring of the combined beneficial material and substrate upon the body of a human.